

IN THE CLAIMS:

1 1. (CURRENTLY AMENDED) In a computer network comprising a plurality of intermediate nodes, a method for gracefully shutting down a resource contained in an intermediate node, the method comprising the steps of:

4 advertising to other intermediate nodes in the network that a resource is being
5 gracefully shut down;

6 determining if a condition that warrants shutting down the resource is met,
7 wherein the condition is an expiration of a predetermined period of time; and

8 if the condition is met, shutting down the resource.

1 2. (ORIGINAL) A method as defined in claim 1 wherein the resource is a protocol.

1 3. (ORIGINAL) A method as defined in claim 1 wherein the resource is an interface.

1 4. (ORIGINAL) A method as defined in claim 1 wherein the resource is a node.

1 5. (ORIGINAL) A method as defined in claim 1 comprising the steps of:

2 entering one or more commands into the intermediate node to indicate the re-
3 source is being gracefully shutdown; and

4 advertising the resource is being gracefully shut down.

1 6. (ORIGINAL) A method as defined in claim 1 comprising the steps of:

2 monitoring the resource to determine if the resource should be gracefully shut
3 down; and

4 if so, advertising the resource is being gracefully shut down.

1 7. (ORIGINAL) A method as defined in claim 1 wherein the intermediate node is cou-
2 pled to one or more neighboring intermediate nodes in the plurality of intermediate
3 nodes.

1 8. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 generating an advertisement message containing an overload bit that is asserted;
3 and
4 flooding the advertisement message to the neighboring intermediate nodes.

1 9. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 generating an advertisement message containing an age value set to a maximum
3 age; and
4 flooding the advertisement message to the neighboring intermediate nodes.

1 10. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 generating an advertisement message that associates the resource with a maxi-
3 mum cost; and
4 flooding the advertisement message to the neighboring intermediate nodes.

1 11. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 generating an advertisement message containing costs associated with non-stub
3 links set to LSInfinity and costs associated with stub links set to an interface output cost;
4 and
5 flooding the advertisement message to the neighboring intermediate nodes.

1 12. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 advertising the resource to the neighboring intermediate nodes;
3 generating an advertisement message that omits the resource; and
4 flooding the advertisement message to the neighboring intermediate nodes.

1 13. (ORIGINAL) A method as defined in claim 7 comprising the steps of:
2 generating an advertisement message containing a graceful shutdown type-length-
3 value field; and
4 flooding the advertisement message to the neighboring intermediate nodes.

1 14. (ORIGINAL) A method as defined in claim 13 wherein the advertisement message
2 contains information that identifies the resource being gracefully shut down.

1 15. (CANCELLED)

1 16. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-
3 mediate node, the method comprising the steps of:
4 advertising to other intermediate nodes in the network that a resource is being
5 gracefully shut down;
6 determining if a condition that warrants shutting down the resource is met, A
7 method as defined in claim 1 wherein the condition is the resource reaching a predeter-
8 mined level of activity; and
9 if the condition is met, shutting down the resource.

1 17. (CURRENTLY AMENDED) An intermediate node contained in a data network com-
2 prising a plurality of intermediate nodes, the intermediate node comprising:
3 a resource; and
4 a processor configured to:
5 a) advertise to other intermediate nodes in the network that the resource is being
6 gracefully shut down,

7 b) determine if a condition that warrants shutting down the resource is met,
8 wherein the condition is an expiration of a predetermined period of time; and
9 c) if the condition is met, shutting down the resource.

1 18. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is a
2 protocol.

1 19. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is an
2 interface.

1 20. (ORIGINAL) An intermediate node as defined in claim 17 wherein the resource is a
2 node.

1 21. (ORIGINAL) An intermediate node as defined in claim 17 wherein the processor is
2 configured to monitor the resource to determine if the resource warrants being gracefully
3 shut down and if so, advertise the resource is being gracefully shut down.

1 22. (ORIGINAL) An intermediate node as defined in claim 17 wherein the processor is
2 configured to advertise the resource is being gracefully shut down in response to one or
3 more commands entered into the intermediate node.

1 23. (ORIGINAL) An intermediate node as defined in claim 17 wherein the intermediate
2 node is coupled to one or more neighboring intermediate nodes contained in the plurality
3 of intermediate nodes.

1 24. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
2 configured to generate an advertisement message containing an overload bit that is as-
3 serted and flood the advertisement message to the neighboring intermediate nodes.

- 1 25. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
- 2 configured to generate an advertisement message containing an age value set to a maxi-
- 3 mum age and flood the advertisement message to the neighboring intermediate nodes.

- 1 26. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
- 2 configured to generate an advertisement message that associates the resource with a
- 3 maximum cost and flood the advertisement message to the neighboring intermediate
- 4 nodes.

- 1 27. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
- 2 configured to generate an advertisement message containing costs associated with non-
- 3 stub links set to LSInfinity and costs associated with stub links set to interface output cost
- 4 and flood the advertisement message to the neighboring intermediate nodes.

- 1 28. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
- 2 configured to generate an advertisement message that omits the resource that is being
- 3 gracefully shut down and flood the advertisement message to the neighboring intermedi-
- 4 ate nodes.

- 1 29. (ORIGINAL) An intermediate node as defined in claim 23 wherein the processor is
- 2 configured to generate an advertisement message containing a graceful shutdown type-
- 3 length-value field and flood the advertisement message to the neighboring intermediate
- 4 nodes.

- 1 30. (ORIGINAL) An intermediate node as defined in claim 29 wherein the advertisement
- 2 message contains resource information that identifies the resource being gracefully shut
- 3 down.

- 1 31. (CURRENTLY AMENDED) An intermediate node contained in a data network
2 comprising a plurality of intermediate nodes, the intermediate node comprising:
3 a resource;
4 means for advertising the resource is being gracefully shut down to other interme-
5 diate nodes in the network;
6 means for determining if a condition warranting the graceful shutdown of the re-
7 source is met, wherein the condition is an expiration of a predetermined period of time; |
8 and
9 means for shutting down the resource if the condition is met.
- 1 32. (CURRENTLY AMENDED) A computer readable medium comprising computer
2 executable instructions for execution in a processor for:
3 advertising a resource contained in an intermediate node is being gracefully shut
4 down to other intermediate nodes in a network;
5 determining if a condition that warrants shutting down the resource is met,
6 wherein the condition is the expiration of a predetermined period of time; and |
7 if the condition is met, shutting down the resource.
- 1 33. (CANCELLED)
- 1 34. (CURRENTLY AMENDED) A computer readable medium comprising computer
2 executable instructions for execution in a processor for:
3 advertising a resource contained in an intermediate node is being gracefully shut
4 down to other intermediate nodes in a network;
5 determining if a condition that warrants shutting down the resource is met, A
6 computer readable medium as defined in claim 32 wherein the condition is the resource
7 reaching a predetermined level of activity; and
8 if the condition is met, shutting down the resource.

1 35. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-
3 mediate node wherein the resource is associated with one or more connections, the
4 method comprising the steps of:

5 notifying a head-end node of each connection associated with the resource that the
6 resource is being gracefully shut down;
7 determining if a condition associated with the graceful shutdown of the resource
8 is met, wherein the condition is the expiration of a predetermined period of time; and
9 if the condition is met, shutting down the resource.

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1 36. (CURRENTLY AMENDED) A method as defined in claim 35-38 comprising the
2 steps of:

3 for each connection:
4 a) establishing an alternative connection;
5 b) switching traffic from the connection to the alternative connection; and
6 c) tearing down the connection.

1 37. (CANCELLED)

1 38. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-
mediate nodes, a method for gracefully shutting down a resource contained in an inter-
mediate node wherein the resource is associated with one or more connections, the
method comprising the steps of:

5 notifying a head-end node of each connection associated with the resource that the
6 resource is being gracefully shut down;
7 determining if a condition associated with the graceful shutdown of the resource
8 is met, A method as defined claim 35-wherein the condition is the resource reaching a
9 predetermined level of activity; and

10 if the condition is met, shutting down the resource.

1 39. (CURRENTLY AMENDED) A method as defined claim ~~35~~ 38 wherein the condition
2 is further includes a head-end node associated with a connection signaling that the con-
3 nection is being torn down.

1 40. (CURRENTLY AMENDED) In a computer network comprising a plurality of inter-
2 mediate nodes, a method for gracefully shutting down a resource contained in an inter-
3 mediate node wherein the resource is associated with one or more connections and one or
4 more connectionless protocols, the method comprising the steps of:

5 gracefully shutting down the one or more connections;

6 determining if a first condition associated with shutting down the connections is
7 met;

8 gracefully shutting down the one or more connectionless protocols;

9 determining if a second condition associated with the shutting down the connec-
10 tionless protocols is met;

11 determining if a condition associated with the graceful shutdown of the resource
12 is met; and

13 if the second condition is met, shutting down the resource.

1 41. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the first con-
2 dition is the expiration of a predetermined period of time.

1 42. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the first con-
2 dition is the resource reaching a predetermined level of activity.

1 43. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second
2 condition is an expiration of a predetermined period of time.

1 44. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second
2 condition is the resource reaching a predetermined level of activity.

1 45. (CURRENTLY AMENDED) A method as defined in claim 40 wherein the second
2 condition is a signal from a head-end node associated with a connection, that is associ-
3 ated with a connectionless protocol being shut down, indicating that the connection is be-
4 ing torn down.